



HEART FAILURE  
ASSOCIATION  
OF THE ESC



EUROPEAN  
*Heart Rhythm*  
ASSOCIATION  
A Registered Branch of the ESC

# CRT Survey

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CRF

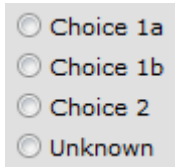
November 25th, 2008



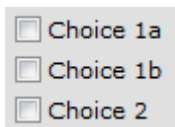
Institut für Herzinfarktforschung Ludwigshafen  
an der Universität Heidelberg



The CRF contains two kinds of multiple choice fields:



Multiple choice fields with round buttons (“Radio-Buttons”) allow a single choice. Since they cannot be unchecked in case of a mistaken click with the mouse (only changed to another value), the choice “Unknown” is provided for any such field. The plausibility checks do not accept the choice “Unknown”, so the field is marked for later data entry.



Square buttons (“Checkboxes”) allow several choices to be checked.

The CRF is divided into several pages. The pages in this document do not resemble this correctly. The following structure is used at the moment:



## Demographics

The enrollment begins on November 1st 2008. The inclusion of patients before this date is not possible.

Date of admission	<input type="text"/> dd/mm/yyyy	▶
Year of birth	<input type="text"/> yyyy	▶
Gender	<input type="radio"/> Male <input type="radio"/> Female	▶
Height	<input type="text"/> cm	▶
Weight	<input type="text"/> kg	▶
Is this an elective admission for implantation of a CRT-P/CRT-D ?	<input type="radio"/> No <input type="radio"/> Yes	▶

## Heart failure aetiology

Heart failure aetiology	<input type="radio"/> Ischemic <input type="radio"/> Non-ischemic <input type="radio"/> Other	▶
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## Past History

HF hospitalisation during last year	<input type="radio"/> No <input type="radio"/> Yes	▶
Diabetes mellitus	<input type="radio"/> No <input type="radio"/> Yes	▶
Chronic lung disease	<input type="radio"/> No <input type="radio"/> Yes	▶
Previous coronary artery bypass graft (CABG)	<input type="radio"/> No <input type="radio"/> Yes	▶
Previous percutaneous coronary intervention (PCI)	<input type="radio"/> No <input type="radio"/> Yes	▶
Previous valvular surgery	<input type="radio"/> No <input type="radio"/> Yes	▶
History of Ablation	<input type="radio"/> No <input checked="" type="radio"/> Yes <input type="checkbox"/> AV-Node <input type="checkbox"/> AF <input type="checkbox"/> VT	▶
Prior Device Implantation (PPM, ICD)	<input type="radio"/> No <input checked="" type="radio"/> Yes <input type="checkbox"/> within last year	▶
Previous VF / sustained VT	<input type="radio"/> No <input type="radio"/> Yes	▶

## Clinical evaluation (pre OP)

Functional Class	<input type="radio"/> NYHA I <input type="radio"/> NYHA II <input type="radio"/> NYHA III <input type="radio"/> NYHA IV	▶
Blood pressure	<input type="text"/> / <input type="text"/> mmHg	▶

## ECG (pre OP)

Heart rate	<input type="text"/> bpm	▶
Rhythm	<input type="radio"/> Sinus rhythm <input type="radio"/> Atrial fibrillation <input type="radio"/> Other	▶
QRS annotation	<input type="checkbox"/> Normal <input type="checkbox"/> LBBB <input type="checkbox"/> RBBB <input type="checkbox"/> Other <input checked="" type="checkbox"/> Paced rhythm <input type="radio"/> VVI <input type="radio"/> AAI <input type="radio"/> DDD <input type="radio"/> Other	▶
PR interval	<input type="text"/> msec	▶
QRS duration	<input type="text"/> msec	▶

## Basic Echocardiography

Basic Echocardiography	<input type="checkbox"/> not available		
Left ventricular ejection fraction	<input type="text"/> %		▶
LV end-diastolic diameter	<input type="text"/> mm		▶
LV end-systolic diameter	<input type="text"/> mm		▶
Mitral regurgitation	<input type="radio"/> None <input type="radio"/> Trivial <input type="radio"/> Mild <input type="radio"/> Moderate <input type="radio"/> Severe		▶
Aortic stenosis	<input type="radio"/> None <input type="radio"/> Trivial <input type="radio"/> Mild <input type="radio"/> Moderate <input type="radio"/> Severe		▶
Aortic regurgitation	<input type="radio"/> None <input type="radio"/> Trivial <input type="radio"/> Mild <input type="radio"/> Moderate <input type="radio"/> Severe		▶
Dyssynchrony-INTRA-LV	<input type="radio"/> Absent <input type="radio"/> Subtle <input type="radio"/> Obvious <input type="radio"/> Marked		▶
		<input type="radio"/> not performed	▶

## Extended Echocardiography (optional)

Extended Echocardiography	<input type="checkbox"/> not available		
LV end-systolic volume	<input type="text"/> ml	<input type="checkbox"/> not measured	
LV end-diastolic volume	<input type="text"/> ml	<input type="checkbox"/> not measured	
Estimated systolic pulmonary arterial pressure	<input type="text"/> mmHg	<input type="checkbox"/> not measured	
R-R interval	<input type="text"/> msec	<input type="checkbox"/> not measured	
E-Velocity	<input type="text"/> m/s	<input type="checkbox"/> not measured	
A-Velocity	<input type="text"/> m/s	<input type="checkbox"/> not measured	
Duration of left ventricular ejection	<input type="text"/> msec	<input type="checkbox"/> not measured	
QRS to Aortic Opening (APET)	<input type="text"/> msec	<input type="checkbox"/> not measured	
QRS to Pulmonary Opening (PPET)	<input type="text"/> msec	<input type="checkbox"/> not measured	

## Laboratory measurements

Hb	<input type="text"/> g/dl	<input type="checkbox"/> not measured	▶
Na	<input type="text"/> mmol/l	<input type="checkbox"/> not measured	▶
K	<input type="text"/> mmol/l	<input type="checkbox"/> not measured	▶
BNP	<input type="text"/> pg/ml	<input type="checkbox"/> not measured	▶
NT-proBNP	<input type="text"/> pg/ml	<input type="checkbox"/> not measured	▶
Creatinine	<input type="text"/> µmol/l	<input type="checkbox"/> not measured	▶

## Procedure

<b>Date of procedure</b>	<input type="text"/> dd/mm/yyyy	
<b>Type of device</b>	<input type="radio"/> CRT-P <input checked="" type="radio"/> CRT-D	
<b>Implantation of the CRT/CRT-D device based on evidence of</b>	<input type="radio"/> QRS duration <input type="radio"/> Mechanical dyssynchrony <input type="radio"/> Both <input type="radio"/> Neither, please explain <input type="text"/>	
<b>Operator</b>	<input type="checkbox"/> Electrophysiologist <input type="checkbox"/> HF physician <input type="checkbox"/> Invasive cardiologist <input type="checkbox"/> Surgeon <input type="checkbox"/> Other	
<b>Location of procedure</b>	<input type="radio"/> EP / Cath lab <input type="radio"/> OR <input type="radio"/> Other	
<b>Sedation / anaesthesia</b>	<input type="radio"/> No <input type="radio"/> IV Sedation <input type="radio"/> General anaesthetic	
<b>Epicardial approach</b>	<input type="radio"/> No <input type="radio"/> Yes	
<b>Duration of procedure "skin to skin"</b>	<input type="text"/> min	
<b>Prophylactic Antibiotics</b>	<input type="radio"/> No <input type="radio"/> Yes	
<b>Fluoroscopy time</b>	<input type="text"/> min <input type="checkbox"/> Unknown	
<b>Test shock given</b>	<input type="radio"/> No <input type="radio"/> Yes	

## Peri-procedural complications

<b>Death</b>	<input type="radio"/> No <input type="radio"/> Yes	
<b>Bleeding</b>	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Yes, requiring intervention	
<b>Pocket haematoma</b>	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Yes, requiring intervention	
<b>Pneumothorax</b>	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Yes, requiring intervention	
<b>Pericardial tamponade</b>	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Yes, requiring intervention	
<b>Haemothorax</b>	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Yes, requiring intervention	
<b>Coronary sinus dissection</b>	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Yes, requiring intervention	
<b>Phrenic nerve pacing</b>	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Yes, requiring intervention	
<b>Lead dislocation or displacement</b>	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Yes, requiring intervention	




## Post-implant assessment

<b>Right ventricular lead position</b>	<input type="radio"/> basal <input type="radio"/> middle <input type="radio"/> apical	
<b>Left ventricular lead position</b>	<input type="radio"/> anterior <input type="radio"/> Antero-lateral <input type="radio"/> lateral <input type="radio"/> posterolateral <input type="radio"/> middle cardiac vein	
<b>Paced QRS duration after optimisation</b>	<input type="text"/> msec	
<b>CRT programming</b>	<input type="radio"/> to optimize AV interval <input type="radio"/> to optimize VV interval <input type="radio"/> both	



## Discharge status and major adverse events

<b>Vital status on discharge</b>	<input type="radio"/> Dead	<input checked="" type="radio"/> Alive
Date of death	<input type="text" value=""/>	dd/mm/yyyy
<b>Type of death</b>	<input type="radio"/> all-cause <input type="radio"/> device related <input type="radio"/> non-device related <input type="radio"/> CV death <input type="radio"/> sudden <input type="radio"/> non-sudden <input type="radio"/> HF death	
Date of discharge	<input type="text" value=""/>	dd/mm/yyyy 
<b>Adverse events after implantation</b>	<input type="radio"/> No events <input checked="" type="radio"/> Yes <input type="checkbox"/> MI <input type="checkbox"/> Stroke <input type="checkbox"/> Infection <input type="checkbox"/> Decompensation  <input type="checkbox"/> Arrhythmias: <input type="checkbox"/> VT <input type="checkbox"/> VF <input type="checkbox"/> AFib <input type="checkbox"/> other supraventricular <input type="checkbox"/> Other serious events	
<b>Device related complications</b>	<input type="radio"/> No complications <input checked="" type="radio"/> Yes <input type="checkbox"/> Lead displacement <input type="checkbox"/> Lead malfunction  <input type="checkbox"/> Phrenic nerve stimulation <input type="checkbox"/> Other serious events	
<b>Functional class at discharge ?</b>	<input type="radio"/> NYHA I <input type="radio"/> NYHA II <input type="radio"/> NYHA III <input type="radio"/> NYHA IV 	
<b>Will device follow-up occur in your hospital?</b>	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Unknown 	

## Medical treatment at discharge

<b>Diuretic</b>	<input type="radio"/> No	<input checked="" type="radio"/> Yes
<b>ACE inhibitor</b>	<input type="radio"/> No	<input type="radio"/> Yes 
<b>ARB</b>	<input type="radio"/> No	<input type="radio"/> Yes 
<b>Beta blocker</b>	<input checked="" type="radio"/> No	<input type="radio"/> Yes
<b>Aldosterone antagonist</b>	<input type="radio"/> No	<input type="radio"/> Yes 
<b>Statin</b>	<input type="radio"/> No	<input checked="" type="radio"/> Yes
<b>Anti-arrhythmic agent</b>	<input type="radio"/> No	<input type="radio"/> Yes 
<b>Calcium channel blocker</b>	<input type="radio"/> No	<input type="radio"/> Yes 
<b>Anticoagulant</b>	<input type="radio"/> No	<input type="radio"/> Yes 
<b>Platelet inhibitor</b>	<input type="radio"/> No	<input type="radio"/> Yes 

## Data Entry completed

- I confirm that I have entered all available data for this patient. 
- I have taken appropriate measures to identify the patient at time of routine Follow-Up. 

## Follow-up 1 year (9-15 months)

<b>Date of follow-up</b>	<input type="text"/> dd/mm/yyyy	▶
<b>Death</b>	<input type="radio"/> No <input checked="" type="radio"/> Yes	
<b>Date of death</b>	<input type="text"/> dd/mm/yyyy	▶
<b>Cause of death</b>	<input type="radio"/> All-cause <input type="radio"/> CV death <input type="radio"/> HF death	▶
<b>Hospitalisation</b>	<input type="radio"/> No <input checked="" type="radio"/> Yes	
<b>Number of hospitalizations</b>	<input type="text"/>	▶
<b>Cause</b>	<input type="radio"/> Non-CV <input type="radio"/> CV related <input type="radio"/> HF related <input type="radio"/> Device related	▶
<b>GPA: global patient assessment</b>	<input type="radio"/> Much better <input type="radio"/> No change <input type="radio"/> Worse <input type="radio"/> A little better <input type="radio"/> A little worse <input type="radio"/> Much worse	▶
<b>Device related complications</b>	<input type="radio"/> No complications <input checked="" type="radio"/> Yes <input type="checkbox"/> Lead displacement <input type="checkbox"/> Lead malfunction <input type="checkbox"/> Arrhythmias <input type="checkbox"/> Phrenic nerve stimulation <input type="checkbox"/> Device replacement <input type="checkbox"/> Infection <input type="checkbox"/> Other serious events	▶
<b>Did one AE require the discontinuation of the Device?</b>	<input type="radio"/> No <input type="radio"/> Yes	▶
<b>Functional class</b>	<input type="radio"/> NYHA I <input type="radio"/> NYHA II <input type="radio"/> NYHA III <input type="radio"/> NYHA IV	▶
<b>Blood pressure</b>	<input type="text"/> / <input type="text"/> mmHg	▶
<b>Shocks (appropriate)</b>	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Unknown	▶
<b>Shocks (inappropriate)</b>	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Unknown	▶
<b>Appropriate ATP</b>	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Unknown	▶

## ECG 1 year (9-15 months)

<b>ECG taken</b>	<input type="radio"/> No <input checked="" type="radio"/> Yes, date of ECG <input type="text"/> dd/mm/yyyy	▶
<b>Heart rate</b>	<input type="text"/> bpm	▶
<b>Rhythm</b>	<input type="radio"/> Sinus rhythm <input type="radio"/> Atrial fibrillation <input type="radio"/> Other	▶
<b>QRS annotation</b>	<input type="checkbox"/> Normal <input type="checkbox"/> LBBB <input type="checkbox"/> RBBB <input type="checkbox"/> Other <input checked="" type="checkbox"/> Paced rhythm <input type="radio"/> VVI <input type="radio"/> AAI <input type="radio"/> DDD <input type="radio"/> Other	▶
<b>PR interval</b>	<input type="text"/> ms	▶
<b>QRS duration</b>	<input type="text"/> ms	▶

## Basic Echocardiography 1 year (9-15 months)

Echocardiography taken	<input type="radio"/> No	<input checked="" type="radio"/> Yes, date of Echo	<input type="text"/> dd/mm/yyyy			
Left ventricular ejection fraction	<input type="text"/>	%				
LV end-diastolic diameter	<input type="text"/>	mm				
LV end-systolic diameter	<input type="text"/>	mm				
Mitral regurgitation	<input type="radio"/> None	<input type="radio"/> Trivial	<input type="radio"/> Mild	<input type="radio"/> Moderate	<input type="radio"/> Severe	
Aortic stenosis	<input type="radio"/> None	<input type="radio"/> Trivial	<input type="radio"/> Mild	<input type="radio"/> Moderate	<input type="radio"/> Severe	
Aortic regurgitation	<input type="radio"/> None	<input type="radio"/> Trivial	<input type="radio"/> Mild	<input type="radio"/> Moderate	<input type="radio"/> Severe	
Dyssynchrony-INTRA-LV	<input type="radio"/> Absent	<input type="radio"/> Subtle	<input type="radio"/> Obvious	<input type="radio"/> Marked	<input type="radio"/> not performed	

## Extended Echocardiography (optional)

LV end-systolic volume	<input type="text"/>	ml	<input type="checkbox"/> not measured	
LV end-diastolic volume	<input type="text"/>	ml	<input type="checkbox"/> not measured	
Estimated systolic pulmonary arterial pressure	<input type="text"/>	mmHg	<input type="checkbox"/> not measured	
R-R interval	<input type="text"/>	msec	<input type="checkbox"/> not measured	
E-Velocity	<input type="text"/>	m/s	<input type="checkbox"/> not measured	
A-Velocity	<input type="text"/>	m/s	<input type="checkbox"/> not measured	
Duration of left ventricular ejection	<input type="text"/>	msec	<input type="checkbox"/> not measured	
QRS to Aortic Opening (APET)	<input type="text"/>	msec	<input type="checkbox"/> not measured	
QRS to Pulmonary Opening (PPET)	<input type="text"/>	msec	<input type="checkbox"/> not measured	

## Laboratory measurements 1 year (9-15 months)

Laboratory measurements taken	<input type="radio"/> No	<input checked="" type="radio"/> Yes, date of measurements	<input type="text"/> dd/mm/yyyy	
Hb	<input type="text"/>	mmol/l	<input type="checkbox"/> not measured	
Na	<input type="text"/>	mmol/l	<input type="checkbox"/> not measured	
K	<input type="text"/>	mmol/l	<input type="checkbox"/> not measured	
BNP	<input type="text"/>	pg/ml	<input type="checkbox"/> not measured	
NT-proBNP	<input type="text"/>	pg/ml	<input type="checkbox"/> not measured	
Creatinine	<input type="text"/>	μmol/l	<input type="checkbox"/> not measured	